

ABSTRACT OF THE DISCLOSURE

A switching regulator utilizing on/off control that reduces audio noise at light loads by adjusting the current limit of the switching regulator. In one embodiment, a switching regulator includes a state machine that adjusts the 5 current limit of the switching regulator based on a pattern of feedback signal values from the output of the power supply for a preceding N cycles of the drive signal. The state machine adjusts the current limit lower at light loads such that cycles are not skipped to reduce the operating frequency of the switching regulator into the audio frequency range until the flux density through the transformer is 10 sufficiently low to reduce the generation of audio noise.